UNIVERSITY OF GONDAR

COLLEGE OF MEDICINE AND HEALTH SCIENCES

MIDWIFERY DEPARTMENT

UTILIZATION AND ASSOCIATED FACTORS OF OBSTETRIC ANALGESIA IN LABOR PAIN MANAGEMENT AMONG OBSTETRIC CARE GIVERS IN AMHARA REGIONAL STATE REFERRAL HOSPITALS, NORTHWEST ETHIOPIA.

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Examiner

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List of Abbreviations and Acronym

ACNM	American Collage of Nursing and Midwifery
ACOG	American College of Obstetricians and Gynecologists
ANC	Antenatal Care
ARS	Amhara Regional State
BSc	Bachelor of Science
CNM	Certified Nurse-Midwife
EA	Epidural Anesthesia
SPSS	Statistical Package for Social Sciences
SWI	Sterile Water Injection

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Abstract

Back ground: - Labor pain is the most severe form of pain in women life. Delivery of the infant into the arms of a conscious and pain-free mother is the most exciting and rewarding moment in maternal care services. But since it was regarded as a punishment given by God, labour pain relief was considered as against God's wish. So that no one gives attention to this intolerable life event. Developed countries use obstetric analgesia routinely but in developing countries including Ethiopia it is not a common practice.

Objective: - To assess utilization of obstetric analgesia in labor pain management and associated factors among obstetric care givers.

Method: - Institution based cross sectional study was conducted in Amhara regional state referral hospitals from July 1-15/2014. Two hundred twelve obstetric care givers were included in the study. Data was collected by using self-administered, pre-tested and structured questionnaires. Then it was coded, entered and cleaned in EpiInfo and exported to SPSS for further analysis. Descriptive analysis was done, logistic regression analyses were also used to see the association of dependent and independent variables. Finally Odds ratio and 95% Confidence interval were computed to determine the strength of association.

Result: - This study revealed that the overall utilization of obstetric analgesia in labour pain management was 40.1% which showed only non-pharmacologic methods. The utilization of pharmacologic obstetric analgesia methods was zero. Multivariate logistic regression showed that professionals with low level qualification (AOR=2.69, 95%CI: 1.13, 6.41) and inadequate knowledge (AOR=2.57, 95%CI: 1.42, 4.65) were statistically associated with utilization of obstetric analgesia.

Conclusion and recommendation: Proportion of obstetric analgesia utilization was very low; highest qualification and inadequate knowledge were significantly associated with obstetric analgesia utilization. Providers need to help labouring mother with analgesia; update and make themselves familiar with obstetric analgesia. The quality and associated factors of obstetric analgesia utilization need to be investigated.

Key words: - obstetric analgesia, utilization, associated factors, Ethiopia

1. Introduction

1.1. Statement of the problem

Labour pain is a physiological phenomenon and its evolution is associated with ischemia of uterus; during contraction, dilation of cervix, stretching of vagina, perineum and pelvic structures(1). Historically and cross-culturally women have been attended and supported by other women during labour and birth. However, since the middle of the 20th century, majority of women gave hospital birth and continuous support during labour become exception rather than routine(2). Labour pain relief with pharmacologic analgesia is also full of myths and controversies and the concept of painless delivery was existed in the early 19th and mid-20th century by Edward and Hugson(3).

Labour pain was regarded as punishment given by God from Eve's sin and asking for relief was presumed as against God(4). In 1591, Eufane Ayane of Edinburgh was buried alive into a pit because she asked pain relief during her difficult labour of twin sons(5). The American College of Obstetricians and Gynecologists (ACOG) states that ''there are no other circumstances; considered as severe as labour pain and study in United Kingdom and Finland indicated 93.5% and 80% of labouring women described the pain as very severe and intolerable(6). Childbirth is a traumatic event for 34% of mothers, 1.9% posttraumatic stress disorder(7) and10.9% severe acute postpartum pain in 36 hours, 9.8% persistent pain and 11.2% depression at 8 wk.(8).

Maternal physiological responses to labour pain may affect maternal and fetal wellbeing and progress of labour(9). The International Association for the Study of Pain (IASP) declared 2007 to 2008 the global year against pain in women, with the slogan "real women real pain"(10). ACOG and American College of Nurse-Midwives'(ACNM) recommends pain relief(6)and say women should have access to variety of measures to assist them in labour(11) and in "the absence of medical contraindication, maternal request is enough for pain relief"(12).

Many pharmacologic and none pharmacologic treatments were developed to alleviate labor pain including parenteral opioids, epidural analgesia, combined epidural spinal

analgesia, inhalational analgesia, transcutaneous electrical nerve stimulation (TENS), hypnosis, massage, divertional therapy, labour exercise, breathing technique and acupuncture. The effectiveness of these methods varies but epidural analgesia(EA) remains the gold standard(13).

Effective labour pain management is associated with safe birth experience for the mother and the baby. When women are offered analgesia during labor, they report greater satisfaction with their overall birth experience(14). EA is widely used and provides almost complete labour pain relief (90-95%) and does not impede progress of labour; patients who received EA have more favorable(85%) birth experience than who are without (26%)(15). Women who had intrapartum support(non-pharmacologic methods) were more likely to have shorter labour, spontaneous vaginal birth, childbirth satisfaction and less likely to have intrapartum analgesia(2).

In developed world number of women receiving pharmacologic analgesia in 2008 was more than 60%(16) and in 27 states vital statistics report, the percentage of women receiving epidural/spinal anesthesia ranges from 22-78%(17). In developing countries especially in Ethiopia use of obstetric analgesia for labour pain relieve is not a common practice. This may be as a result of several factors including unavailability of equipment, health care delivery systems, knowledge, perception, setting of hospital and managerial problems (18). It may also due to misconceptions including result of long-term backache, harm to baby, increased caesarean section, slow labour progress and permanent medical problems for the mother and newborn(12). The current study was carried with the purpose of exploring factors and utilization of obstetric analgesia in labour pain management among obstetric care givers in Amhara regional state referral hospitals.

1.2 Literature Review

1.2.1 Utilization of Obstetrics Analgesia

The percentage of patients that are offered labor pain relief varies from country to country and even from one institution to another. In developed countries the use of epidural analgesia during labour is around 60% of deliveries; covering France 75%; Sweden 71% and Colombia 31.5%. In other less developed countries such as South Africa, only 21% of women were asked for it(19).

A survey study was done on 124 obstetric care providers in Zaria, Nigeria to assess their awareness, attitude and practice of obstetric analgesia at three high-volume hospitals. The result showed that about 48.4% of health care providers had provided any form of pharmacologic pain relief methods of which systemic opioids were the commonest agent and 56.8% had provided non-pharmacologic methods during their labour(20).

A cross-sectional study conducted in Bangladesh to explore the perception and practice of health care providers who conducts normal vaginal delivery regarding pain relief during labour. The result shows about 60.9%, 58.6% and 6.9% reported to use butaban tablet, injection hyoscine butyl bromide and Pethidine injection during labour respectively. And Forty percent reported to carry out some non-pharmacologic activity to comfort women in labour like giving assurance (88.7%), explaining the process of labour (84.5%) and 77.3 % would allow companion in the labour room(5).

A cross sectional study was done on knowledge and use of sterile water injections (SWI) of Australian midwives for pain relief in labour. About 42.5% midwives were used SWI in their practice and 57.5% indicated they did not. Eighty-six percent indicated they would consider using SWI and 90% were interested in obtaining further information about SWI(21).

Another study was also conducted in United States to determine midwives' knowledge and use of sterile water injections for labor pain management. Midwives who involved in

the study were members of the ACNM. One-fourth (26%) of the midwives use sterile water injections(22).

1.2.2 Associated factors of Obstetrics Analgesia Utilization

In the past many years of practice reasons for not using obstetric analgesia were due to the “bad effects,” including problems with the course of labor and delivery, an increased risk of fetal distress, maternal risks and complications, unnecessary medical intrusion in a natural physiological process and the negative effects on maternal bonding, breastfeeding and even parenting**.** But modern obstetric analgesia has overcome the challenges and avoids these unwanted effects(23).

1.2.2.1 Individual factors

Recent advances on Labour analgesia were summarized by Sunil T Pandya in Indian. As a result, pain relief in labour has always been surrounded with myths and controversies. Recent randomized controlled trials and Cochrane studies have concluded that the association of epidurals with increased caesarean section and long-term backache remain only a myth(24).

Different literatures also identified the factors related to utilization of obstetric analgesia in different area including attitude about childbirth and labour pain, preference of care givers to use pain relief, knowledge about labour analgesia have also shown to influence the use of pain relief(25-28).

A study was done on the risk of cesarean delivery with neuraxial analgesia given early versus late in labor and Effect of labor analgesia on labor outcome. The result shows that provision of neuraxial analgesia(EA and CSE) early in labor has distinct advantages for maternal satisfaction and no negative impact on mode of delivery(29).

It was also discovered that antenatal backache was common in pregnant women but Epidural use was not found to contribute to the cause or worsening of backache and did not have an increased risk of Caesarean section. It was also found that the babies delivered had better health assessment scores (Apgar scores) which allows preservation of good placental oxygenation and nutrient transfer to the baby(12)

A prospective, randomized, double-blind study was done on Effect of labor epidural analgesia with and without fentanyl on infant breast-feeding. A result was evaluated on breastfeeding within 2–48 hr. and 12 months postpartum but there was no difference in the breastfeeding initiation rate and no effect on the length of breastfeeding(30). Other study also concluded that low-dose local anesthetic labour analgesia regimens do not clinically affect breastfeeding and should be still offered to mothers wishing to breastfeed their babies(31).

Studies also showed factors for not using obstetrics analgesia in labor pain management among obstetric care givers. Most care givers (94.8%) agreed that pain relief is needed during labor and only 2.1% of respondents were undecided about the provision of pain relief during labor and 3.2% were of the opinion that pain relief was not necessary during labor(20). Only 6.2% thought women with labour pain should receive an analgesic and about two third of respondents thought that pain relief may delay progress of labour, 69.5% apprehend fetal distress while 60% are of the opinion that women should endure the natural pain(5).

Labor epidural analgesia is unfamiliar to Wakayaman parturient in Japan because of insufficient information and medical services for mothers given by obstetric care givers. Midwives have negative attitude to painless labor assisted by epidural technique and opted for natural childbirth. Obstetricians also responded negatively toward epidural analgesia during labor because of their fear about forceps and prolonged delivery(32). About 54.5% had no reason for not offering it. Unavailability of methods, lack of knowledge and skills were also given by respondents as reasons for not offering pain relief(20).

A clinical audit of knowledge and practice of epidural labour analgesia among obstetricians in south-west Nigeria was done. About 37.8% and 53.3% of respondents say there is interference with labour and increased incidence of instrumentation following epidural analgesia respectively. But 84.4% stated that the technique is not associated with adverse neonatal or maternal outcome and 97.8% will prefer epidural labour analgesia for their patients(33).

A study was done in Australia on the preferences of pregnant women, midwives and obstetricians on Pain relief for childbirth. Midwives had a greater preference of the physical or non-pharmacologic pain relief methods and obstetricians prefer for pharmacological methods. But both groups had the greatest preference for having a supporting person during labour with more than 90% of all participants wanting such support(34).

Nurse-midwives' use and attitudes toward epidural analgesia was identified in United States of America. About 53% of certified nurse-midwives (CNMs) reported a negative attitude toward the increased use of epidurals in CNM practice and 64% reported concern over the increased number of their clients who desire epidural anesthesia. CNMs were almost evenly split on the issue of whether nurse-midwives should discourage the use of epidurals in nurse-midwifery practice(35).

1.2.2.2 Institutional factors

Studies have investigated the reasons for utilization of pain relief during labour in France. Managerial, policy, culture and hospital policies(36)clinical, structural and organization factors influences the use of labour pain relief in the obstetric care units(37, 38).

Lesotho midwives' utilization of non-pharmacological pain management methods during the first of stage labour was assessed. According to the results they expressed that they inadequately use these methods during the first stage of labour due to shortage of staff, lack of privacy and space, a high midwife-mother ratio(39).

1.2.3 Conceptual frame work

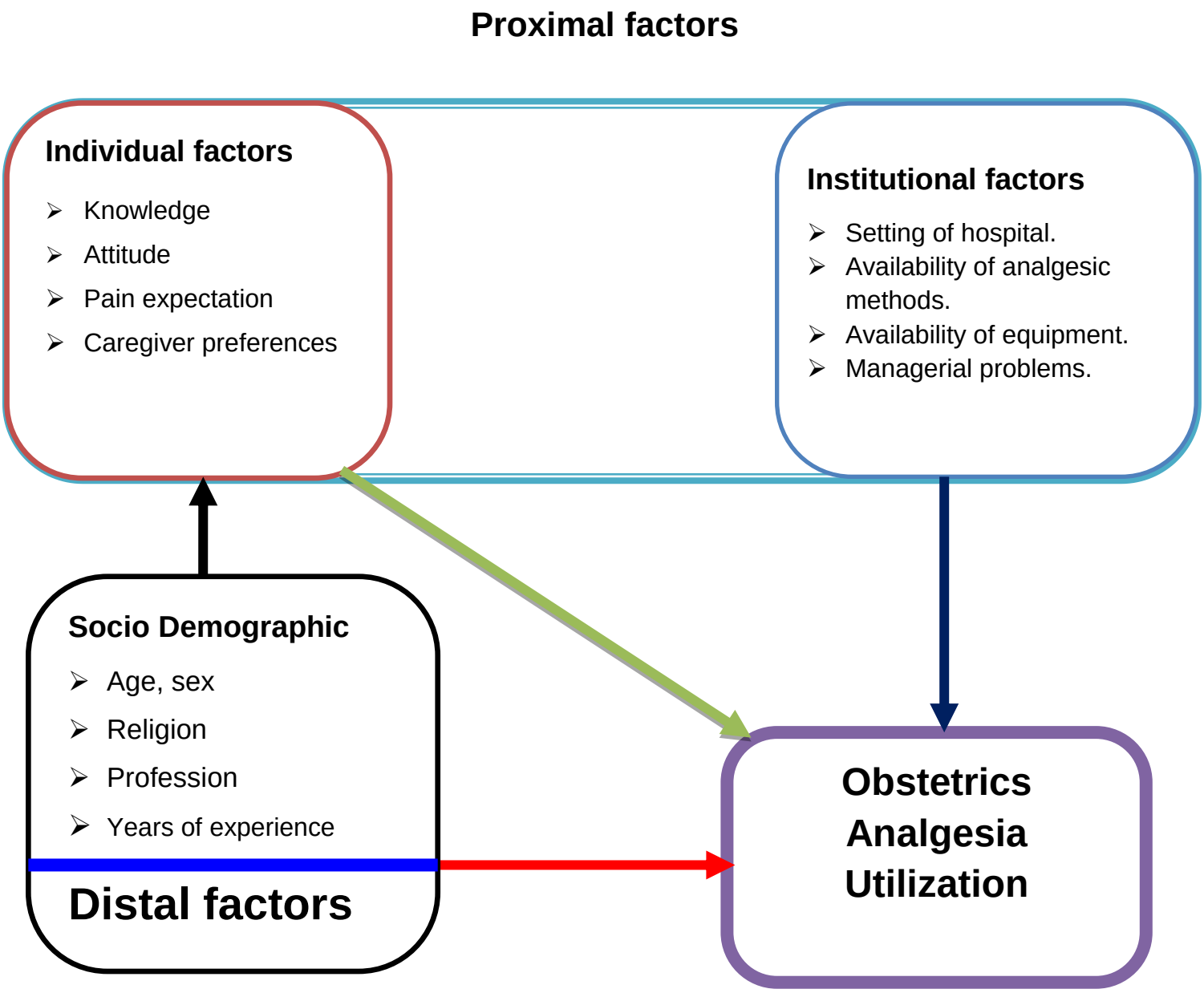


Figure 1 Conceptual framework on utilization of obstetrics analgesia and associated factors in Amhara Region referral hospitals, North West, Ethiopia 2014.

Source: Prepared by the investigator after thorough searching of literatures.

1.3 Significance of the study

Labor pain is the most severe form of pain in women life. Religiously and culturally labour pain is considered as a punishment given by God so that no one gives attention to this severe and intolerable life experience and mothers give birth traumatically. Support during labour and childbirth becomes missed practice in health facility delivery service and pain relief with pharmacologic analgesics is surrounded with myths and controversies.

The delivery of the infant into the arms of conscious and pain-free mother is one of the most exciting and rewarding moment in maternal care services. Effective labour pain management results greater satisfaction, safe and comfortable birth experience for the mother and the baby. In 2014, about 57.2% of pregnant Ethiopian women attended at least one antenatal care visit but only 14.5% of deliveries are in health care facilities. In this case pain relief during labour may be a critical intervention for increasing facility deliveries.

Nowadays labor pain management is very common practice in many countries of the world; but in Ethiopia it is not common to manage labour pain. To date as far as my knowledge is concerned there is no published data on the prevalence, determinants and severity of labor pain as well as the role of pain relief agents. Therefore this paper will determines the utilization of obstetric analgesia and associated factors in labour pain management among obstetric care givers in Amhara Region Referral Hospitals. The result of this study may help policy makers, stakeholders and obstetric care givers to design appropriate interventions in giving safe and comfortable delivery service as well as it uses as baseline for further research.

2. Objective

2.1 General Objective:

- To assess utilization of obstetric analgesia in labor pain management and associated factors among obstetric care givers in Amhara regional state referral hospitals, Northwest Ethiopia from July 1 to15, 2014.

2.2 Specific Objective:

1. To determine the proportion of obstetric analgesia utilization in labour pain management.
2. To identify factors associated with utilization of obstetric analgesia in labor pain management.

3. Methods and Materials

3.1. Study design

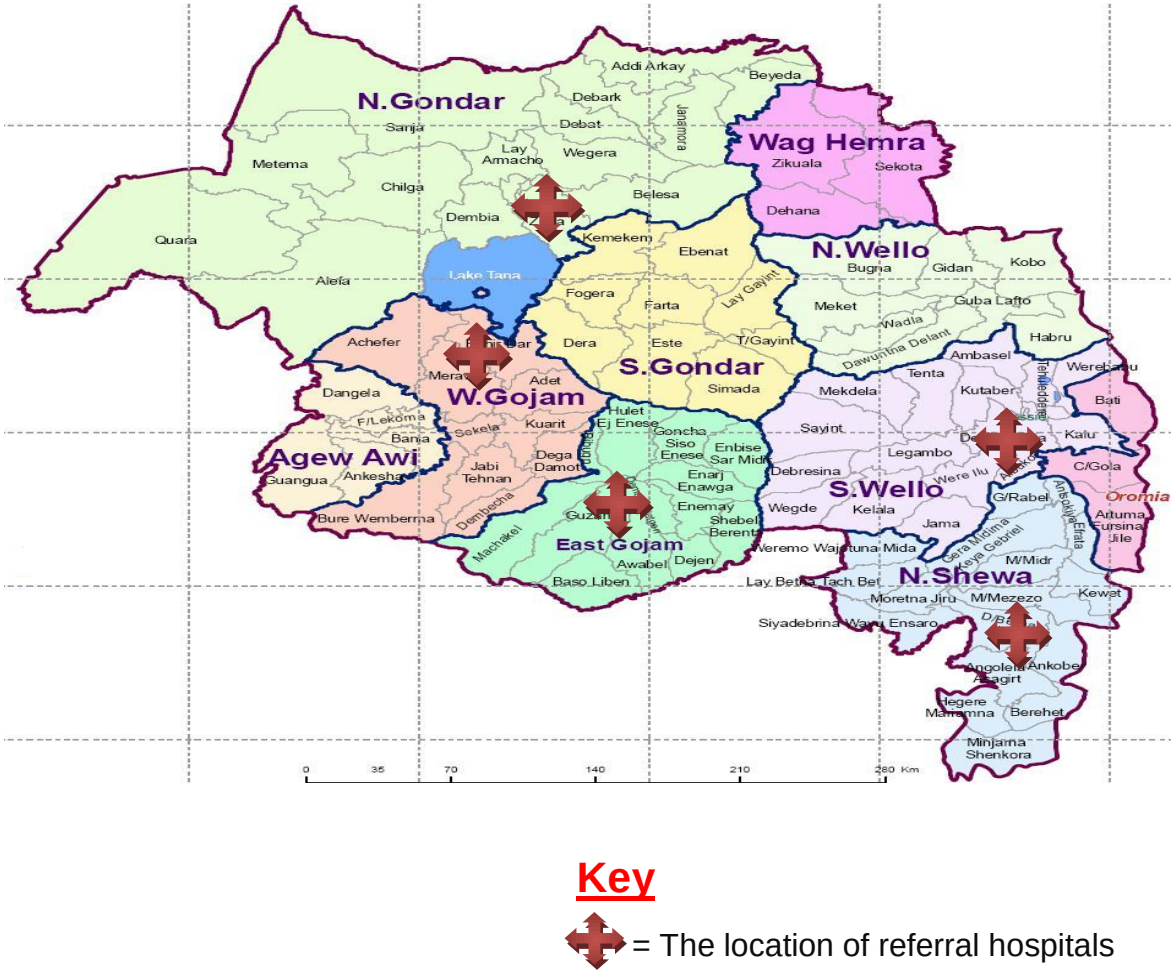
An institution based cross sectional study.

3.2. Study areas and period

This study was conducted in Amhara Regional State Referral Hospitals from July 1-15, /2014. Amhara regional state is one of the nine regional states in Ethiopia which is found between 11° 30' 00" N latitude & 38° 30' 00" E longitude on the northwestern part of Ethiopia.

The region has a population of 17,221,976 of whom about 8,641,580 are men and 8,580,396 of them are women; the urban inhabitants were 2,112,595(12.27%) of the population. It is placed on an estimated area of 159,173.66 square kilometers and estimated density of 108.2 people per square kilometer. For the entire Region there are about 3,983,768 households which results in an average of 4.3 persons of a household, with urban households having on average of 3.3 and rural households of 4.5 peoples(40).

The region has 19 hospitals, 220 health centers and 2941 health posts. The region have 46 gynecologists, 109 general practitioners, 670 heath officers, 4902 Nurses and 294 Midwives. In addition, there are 5 referral hospitals including University of Gondar Teaching Referral Hospital (UOGRH), Felege Hiwot referral hospital (FRH), Dessie referral hospital (DRH), Debremarkos referral hospital (DMRH) and Debrebirhan referral hospital (DBRH) each of them assumed to serve 5 million peoples. The hospitals had a total of 220 professionals giving maternal and neonatal care services. It had have 100-200 beds and 2000-3000 deliveries per year and 5-8 deliveries per day.



Key

= The location of referral hospitals

Figure 2 The location of the Amhara regional state referral hospitals, Amhara region, July 1-15, 2014.

3.3. Population

3.3.1 Source population

The source population of the study were all obstetric care givers in Amhara Region Referral Hospitals.

3.3.2 Study population

The study population were all obstetric care givers available during the study period in Amhara Region Referral Hospitals.

3.4. Inclusion criteria

All health professionals (Doctors, Midwives, Nurses, Health Officers and Anaesthetists) who were giving obstetric care in the delivery room.

3.5. Sample size and Sampling procedure

Sample size

The sample size of the study was calculated by using single population proportion formula. It was determined by taking proportion of 50%, confidence interval of 95 % and a maximum discrepancy of 5% between the sample and the underlying population. The formula to determine the sample size is showed below.

$$n = \frac{\left(\frac{Z\alpha}{2}\right)^2 \; p(1-p)^2}{d^2}$$

=384

Thus the final sample size for this study with five percent of non-response rate was 403**.** However, there were a total of 220 obstetric care providers working in the study area.

Sampling procedure

Since there were small number of population in the study area all obstetric care providers who were available during the study period were considered as study participants.

3.6. Study Variables

3.6.1 Dependent variable:-

- Utilization of obstetric analgesia

3.6.2 Independent variables

- **Socio demographic: -** age, sex, religion, profession, highest qualification, years of experience and current position.
- **Individual factors: -** knowledge, attitude, pain expectation, caregiver preferences.
- **Institutional factors: -** availability of analgesic agents and equipment, privacy, space and number of staff (setting of hospital), policies, structural and cost of pain relief (managerial).

3.7. Operational definition

- **Obstetric care givers:** - skilled health professionals who were giving maternal care service in the delivery room.
- **Obstetric analgesia Utilizers: -** respondents who were using greater than or equal to the mean value of obstetric analgesia methods for labour pain management.
- **Adequate Knowledge: -** caregivers who knew greater than or equal to the mean value of knowledge related obstetric analgesia questions.
- **Inadequate Knowledge: -** caregivers who knew less than or equal to the mean value of knowledge related obstetric analgesia questions.
- **Positive attitude: -** respondents who answered greater than or equal to the mean value of attitude related obstetric analgesia questions.
- **Negative attitude: -** respondents who answered less than or equal to the mean value of attitude related obstetric analgesia questions.

3.8. Data collection procedures and tools

3.8.1 Data collection

The research was conducted in Amhara Region Referral Hospitals from July 1-15/2014. Structured pre-tested self-administered questionnaire was prepared by adapting from different studies considering the local situation of the study area and purpose of the study. It was developed in English language to be understood by every respondent.

The questionnaire had four components related to obstetric analgesia utilization in labour pain management including providers' socio-demographic characteristics, knowledge, attitude and utilization related questions with their reason not to use pharmacologic and non-pharmacologic analgesia methods. The socio-demographic characteristics of the respondents were assessed by seven questions, the level of their knowledge by four questions and attitude towards the utilization of labour pain relief were also measured by seven questions. The attitude of respondents were categorized into positive and negative, their knowledge also divided into adequate and inadequate. Finally questions which were used to determine obstetric analgesia utilization among obstetric care givers and associated factors were also identified by their response to nine questions related to their utilization.

Five BSc(Bachelor of Science) female (one in each hospital) midwives graduating class students were employed as data collectors and trained for one day about the way of data collection, timely collection and reorganization of the collected data from the respondents. Self-administered structured questionnaire was delivered to each obstetric care giver professional in the delivery room during the data collection time and requested to fill the data honestly and sincerely.

3.8.2 Quality control

To make the data valid and reliable**;** the structured questionnaire was pre-tested on 11 (5% of total sample) individuals from Suhul General Hospital, Shire Inda Silasie, Ethiopia. In addition one day training was provided for data collectors to create awareness on the data which was going to be collected, timely collection and data management. To get informed consent and reliable data clear explanation of the purpose and procedure of the study were given to the study participants. Finally the filled questionnaire was checked to ensure that all the information were properly collected and recorded.

3.9. Data Processing and Analysis

Data clean up and cross-checking was done before analysis. Data were checked, coded and entered to EPI Info version 3.5.3 then it was exported to Statistical Package for Social Sciences (SPSS) version 20 for analysis. Both descriptive and analytical statistical procedures were utilized. Descriptive statistics like percentage mean and standard deviation were used for the presentation of demographic data and utilization of obstetric analgesia. Tables and figures were also be used for data presentation.

Binary logistic regression was used to identify factors associated with utilization of obstetric analgesia among obstetric care giver professionals on the basis of OR, 95% CI and p-value of less than 0.2. Multiple logistic regression model was fitted to control the possible effect of confounders and finally the variables which had independent association with utilization of obstetric analgesia were identified on the basis of AOR, with 95%CI and p-value less than 0.05. The variables were entered to the multivariate model using the Backward Stepwise (Likelihood Ratio) regression method.

4. Ethical Consideration

The data collection was carried out after getting approval for the project from the Ethical review committee of Gondar University, College of Medicine & Health Sciences Department of Midwifery. In addition official letter of cooperation was submitted to all referral hospitals.

Informed verbal consent was obtained from each study participant prior to starting the data collection process. Each participant was informed about the aim of the study and its contribution for policy makers and other concerned bodies. Any obstetric care givers who were not willing to participate in the study were not enforced to involve in the project and had full right to refuse or withdraw from participation.

They were also informed that all data obtained from them would be kept confidential by assigning codes instead of using name and other personal identifiers and the information is only for the purpose of the study.

5. Result

I. Socio-demographic characteristics

A total of 212 obstetric care givers from five referral hospitals were included in the study, making a response rate of 99%.

The mean age of the respondents was 29.4(±SD=6.6) years. Two third 141(66.5%) of professionals were in the age group of 20-29 years followed by 52(24.5%) of between 30-39 years. About 136(64.2%) of the respondents were males and one hundred sixty eight professionals (79.2%) were orthodox Christians followed by 12.3% of Muslims. Out of the total respondents 100(47.2%) were midwives in profession followed by 41(19.3%), 33(15.6%) of medical Doctors and Nurses respectively. Nearly two third 143(67.5%) of respondents had experience of less than 5 years, 5-10 years 40(18.9%) and more than 10 years 29(13.6%). About 83(39.2%) of respondents had highest qualification of BSc degree, fifty seven (26.9%) had diploma and 31(14.6%) had MSc degree. Almost all respondents (97.2%) were staff members. **(Table 1)**

Table 1 Distribution of professionals by their socio-demographic characteristic in ARS referral hospitals, Northwest Ethiopia, July 1-15, 2014 (**n = 212**).

Characteristics	Frequency (n)	Percent (%)
Age(in years)		
20–29	141	66.5
30–39	52	24.5
>=40	19	9
Sex		
Male	136	64.2
Female	76	35.8
Religion		
Orthodox	168	79.2
Muslim	26	12.3
Others	18	8.5
Profession		
Midwife	100	47.2
Medical Doctor	41	19.3
Nurse	33	15.6
Health Officer	24	11.3
Anesthiologist	14	6.6
Highest qualification		
BSc	83	39.2
Diploma	57	26.9
Masters	31	14.6
General practitioner	17	8
Intern	11	5.2
Resident	9	4.2.
Gynecologist	4	1.9
Years of experience		
<=5	143	67.5
6-9	40	18.9
>=10	29	13.6
Current position		
Staff member	206	97.2
Others®	6	2.8

®= medical director, mentor and hospital manager.

II. Utilization of obstetrics analgesia

The overall utilization of obstetrics analgesia in labour pain management in ARS referral hospitals was 40.1 %. All professionals used non-pharmacologic methods and while the utilization of pharmacologic obstetric analgesia methods were found to be zero. Psychotherapy 75(88.2%) was the most used method followed by breathing technique 61(71.9%) and massage 54(63.5%). **Figure (3)**

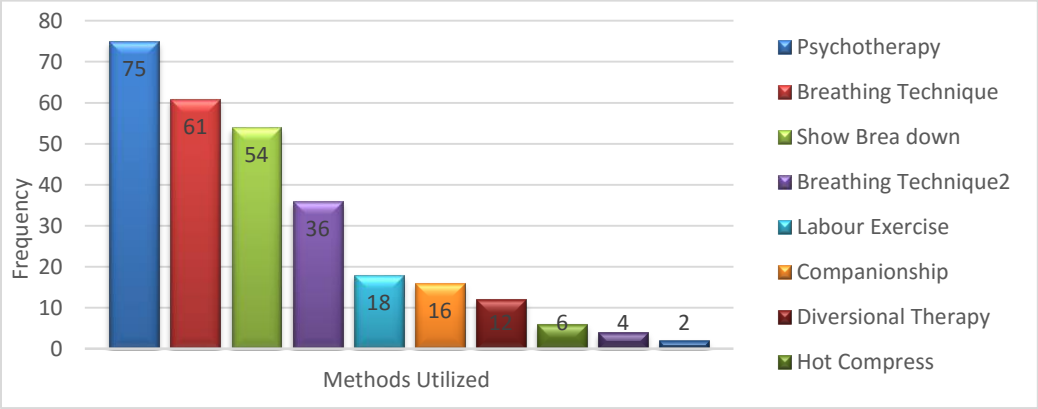


Figure 3 utilization of obstetric analgesia in labour pain management in ARS referral hospitals, Northwest Ethiopia, July 1-15, 2014 **(n= 85).**

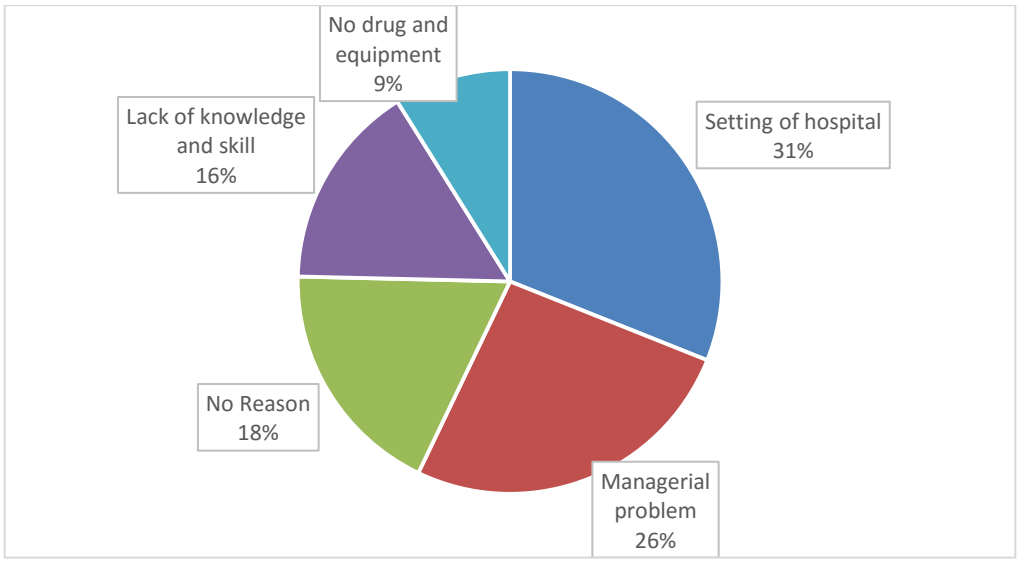


Figure 4 Reasons given for not administering obstetric analgesia for labour pain management in Amhara Region Referral Hospitals (**n=127**)

III. Individual factor

Concerning the knowledge of professionals out of the total respondents 132(62.3%) of professionals had inadequate knowledge while the rest eighty (37.7%) respondents had adequate knowledge about obstetrics analgesia. One hundred fifty one(78.2%) know both pharmacologic and nonpharmacologic methods and 24(12.4%), 18(9.4%) also know nonpharmacologic and pharmacologic methods respectively.

The most known pharmacologic methods were IM/Iv107 (63.3%), regional 105(62.1%) NSAIDS 98(58%) and systemic opioids 76(44.9%). **Table (2)**

Table 2 Distribution of professionals showing their pharmacologic obstetric analgesia knowledge in ARS referral hospitals, Northwest Ethiopia, July 1-15, 2014 (**n= 169**).

Characteristics	Frequency (n)	Percent (%)
Regional		
Yes	105	62.1
No	64	37.9
Systemic opioids		
Yes	76	44.9
No	93	55.1
Inhalational		
Yes	56	33.1
No	113	66.9
IM/Iv		
Yes	107	63.3
No	62	36.7
Cervical		
Yes	40	23.7
No	129	76.3
Opioid with adjuvant		
Yes	47	27.8
No	122	72.2
NSAIDS		
Yes	98	58
No	71	42

On the other hand; the common known non-pharmacologic obstetric analgesia methods were psychotherapy131 (74.8%), massage 123(70.2%), breathing technique 95(54.2%), showing how to bear down 88(50.2%) and labour exercise 75(42.8%). **Table (3)**

Table3 Distribution of professionals showing their non-pharmacologic obstetric analgesia knowledge in ARS referral hospitals, Northwest Ethiopia, July1-15, 2014 (**n=175**).

Characteristics	Frequency (n)	Percent (%
Acuputure		
Yes	30	17.1
No	145	82.9
Divertional therapy		
Yes	33	18.8
No	142	81.2
Psychotherapy		
Yes	131	74.8
No	44	25.2
Massage		
Yes	123	70.2
No	52	29.8
Labour exercise		
Yes	75	42.8
No	100	57.2
Breathing technique		
Yes	95	54.2
No	80	45.8
Hypnosis		
Yes	23	13.1
No	152	86.9
Allow companion		
Yes	51	29.1
No	124	70.9
Show how bear down		
Yes	88	50.2
No	87	49.8
Hot compress		
Yes	42	24
No	133	76

Regarding the attitude of professionals out of the total respondents 156(73.6%) professionals had Negative attitude while the rest fifty six (26.4%) respondents had Positive attitude towards utilization of obstetrics analgesia in labour pain management. One hundred sixty one (75.9%) say analgesia should be given to laboring mothers and out of them 116(72%) support analgesia for every mothers and 45 (28%) say analgesia should be given when labour pain becomes severe.

Most professionals 96(45.3%) prefer Pharmacologic methods as better pain relief followed by 64(30.2%) of non-pharmacologic methods and the rest prefer both methods. One hundred twenty six (59.4%) of respondents believe that pharmacologic obstetrics analgesia had bad effect on labour progress and outcome. The worst effects mentioned by respondents were delay progress of labour (43.4%), Fetal Distress (34.7%) and increase Cesarean Delivery (29.7%). **Figure 5**

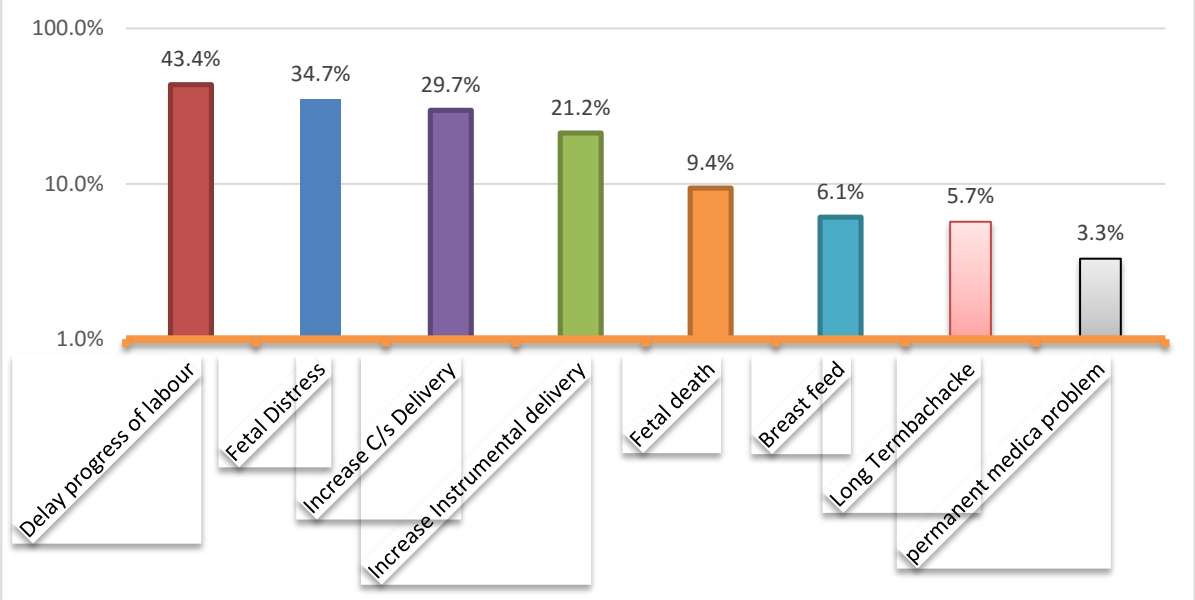


Figure 5 Respondents' response to the question "effect of pharmacologic pain relief methods during labor and childbirth?" in ARSRH, Northwest Ethiopia, July 1-15, 2014(**n=166**)

IV. Factors associated with utilization of Obstetric analgesia

In the bivariate analysis, professional's age, their highest qualification, knowledge and attitude were found independently associated with utilization of obstetric analgesia in labour pain management. With a cut point of P-value of 0.2 those variables which showed independent association with obstetric analgesia utilization were transferred to multivariate logistic regression; professional's qualification and knowledge were found statistically associated with utilization of obstetric analgesia.

Professionals who had highest qualification of diploma (lower level qualification) were **2.69** times more likely to use obstetric analgesia than who had second degree and higher qualification (AOR= 2.69, 95% CI = (1.13-6.41). Statistical association was also depicted that professionals knowledge had significant association with obstetric analgesia, where professionals who had inadequate knowledge were 2.57 times more likely to use obstetric analgesia than who had adequate knowledge (AOR: 2.57,95% CI: 1.42, 4.65) **(Table 5).**

Table 4 Bivariate and multivariate analysis of factors associated with obstetric analgesia utilization in labour pain management in ARS referral hospitals, Northwest Ethiopia, July 1-15, 2014 (**n= 212**).

Characteristics	Obstetric analgesia Utilization		COR(95% CI)	AOR(95%CI)
	Yes Frequency(n)	No Frequency(n)		
Attitude				
Negative	57	99	0.58(0.31-1.08)	0.66(0.32, 1.35)
Positive	28	28	1.00	1.00
Qualification				
Lower level	27	30	**2.15(0.94-4.92)**	**2.69(1.13-6.41)**
Medium level	45	66	1.63(0.77-3.44)	1.75(0.8,13.78)
Higher level	13	31	1.00	1.00
Age				
20-29	51	90	0.78(0.29-2.06)	0.71(0.26, 1.95)
30-39	26	26	1.38(0.48-3.97)	1.39(0.47, 4.14)
>40	8	11	1.00	1.00
Knowledge				
Adequate	42	38	1.00	1.00
Inadequate	43	89	**2.29(1.29-4.05)**	**2.57(1.42-4.65)**

®=Lower level: Diploma and below, Medium level: BSc, GP and Intern, Higher level: MSc, obstetrician and Resident.

6. Discussion

The present study revealed that the overall utilization of obstetric analgesia in labour pain management in Amhara regional state referral hospitals was found to be 40.1%. This proportion of utilization showed only non-pharmacologic obstetric analgesia methods. The finding is in line with utilization of non-pharmacologic obstetric analgesia methods in Bangladesh(40%); specifically to psychotherapy analgesia methods but lower in labour exercise and allowing companionship in labour pain relief(84.5% and 77.3% respectively) which were 21% and 19.3% in this study(5). This finding is lower than the non-pharmacologic obstetric analgesia utilization in Nigeria (56.8%)(20).

The utilization of pharmacologic analgesia methods were found to be zero. Even though the utilization was zero, it is a common practice in many countries of the world. The result is not comparable with others like epidural obstetric analgesia use in France (75%), Sweden (71%), Bangladesh (58.5%), Colombia (31.5%) and South Africa (21%). It is also not comparable with sterile water use in Australia (42.5%), America (26%) and butyl bromide (58.6%) and butaban tablet (60.9%) use in Bangladesh (5, 21-23). In Nigeria 49% of obstetricians offered obstetric analgesia of which the commonest analgesia was opioids (41.1%)(41) and 27% of mothers in Canada received the commonest (92.6%) IM Pentazocine Hydrochloride pain relief(42). In other study about (22.1% - 33.5%) and (48%) in Nigeria, (18%) in Kenya and 55% in Durban, South Africa received pharmacologic obstetric analgesia(43, 44). Pharmacologic analgesia particularly Pethidine was mentioned by professionals being used for only when they want to rule out false labour.

The lower obstetric analgesia utilization for labour pain management in this study might be due to the high patient flow in referral hospitals and negative attitudes of professionals about labour pain management. It may be also due to lack of attention for labour pain and setting of the hospital. The other possible explanation for this might be absence of strategies and policies prepared by Ethiopian ministry of health regarding obstetric analgesia utilization in labour pain management.

In the present study the reason for not using obstetric analgesia in labour pain management were; the setting of the hospitals, lack of skilled professionals, unavailability of analgesic materials, unavailability of drugs, misconceptions regarding labour pain and with unknown reasons. The finding is consistent with a study done in Nigeria and Lesotho(20, 39).

The study also found that those professionals who had inadequate knowledge were 2.57 times more likely to use obstetric analgesia than professionals who had adequate knowledge. Similar study in Australia (25-28) also found that knowledge as significant factor for obstetric analgesia utilization. Since this study concerns on both the pharmacologic and non-pharmacologic methods, adequate knowledge of professionals found to be protective for obstetric analgesia utilization in labour pain management.

The possible explanation for these may be because of; level of knowledge in this study is the average of all obstetric analgesia methods. But the low level qualified professionals may not know pharmacologic methods which are more likely known by higher level qualifications. In addition the utilized method is only non-pharmacologic one. So this implication is reflected by their utilization what they know (non-pharmacologic). This is supported by study done in Australia showing that more midwives prefer non-pharmacologic while obstetricians prefer pharmacologic methods for labour pain relief(34).

Obstetric care givers' highest qualification was statistically significant with utilization of obstetric analgesia in labour pain management. Obstetric care givers who had diploma (low level qualification) were 2.69 times more likely to use obstetric analgesia methods than professionals who had second degree and above. This finding is similar with study done in Australia on preference of analgesia between midwives and obstetricians showing more midwives use non-pharmacologic methods while obstetrician more practices pharmacologic analgesics(34). It is also in agreement with utilization of obstetric analgesia in Bangladesh showing primary health care providers favors supportive care(non-pharmacologic methods) during labour(5).

The result in this study showed that the utilization of obstetric analgesia in labour pain management is only the non-pharmacologic methods. Higher utilization of non-pharmacologic method by low level qualified professionals may be due to high patient contact (in normal labour) than those higher level qualified professionals (assigned at high risk mothers or abnormal labour).

7. Limitations of the study

- Though variables like attitude, cultural belief and utilization can best assessed qualitatively; they were studied quantitatively in this study.

8. Conclusion and recommendation

8.1 Conclusion

The study revealed that the proportion of obstetric analgesia utilization in labour pain management were very low in Amhara regional state referral hospitals. Professionals' highest qualification and their knowledge were found significantly associated with obstetric analgesia utilization.

8.2 Recommendation:-

8.2.1 Ministry of Health and ARS health bureau

- Establish a health program which focuses on giving safe and comfortable delivery services with low cost of obstetric analgesia.
- Increase investment in health system, human resources and medical equipment's.

8.2.2 Referral hospitals

- Communicate with stakeholders to increase the awareness and attitude of professionals about labour pain and obstetric analgesia through training.

8.2.3 Nongovernmental organizations

- Give health promotion and information to professionals about labour pain and strengthen short term trainings on issues related to labour pain and obstetric analgesia.

8.2.4 Health workers of each referral hospital

- Update and make themselves familiar with obstetric analgesia.
- Use simple analgesia like systemic opioids, Pethidine, companionship and other support measures to help mothers during labour and childbirth.

8.2.6 Future research

- A qualitative study needs to be done to investigate severity of labor pain, need of mothers for labour pain relief and factors associated with utilization of obstetric analgesia in labour pain management to supplement the findings from this study.

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10. Annexes

Annexes 1 English Questionnaire

I. Background characteristics of respondents

1. Age----------
2. Sex
   A. Male
   B. Female
3. Religion
   A. Muslim
   B. Orthodox
   C. Protestant
   D. Catholic
   E. others
4. Profession
   A. Medical Doctor
   B. Anesthiologist
   C. Nurse
   D. Midwife
   E. Heal Officer
5. Highest qualification
   A. Gynecologist
   B. Resident doctor
   C. Intern doctor
   D. MSc
   E. BSc Degree
   F. Diploma
6. Years of experience
   A. <5 year
   B. 1-5Years
   C. 5-10Years
   D. 10-15Years
   E. >15 years
7. Current position of the respondent
   A. House officer/mentor
   B. Medical director
   C. Staff member
   D. Hospital manager

II. Knowledge related Questions

8. Do you know about obstetric/labour/ analgesia?
   A. Yes
   B. No
9. If yes what type of obstetric/labour/ analgesia method do you know?
   A. Pharmacologic
   B. None pharmacologic
   C. Both
10. What method of pharmacologic methods do you know?
    A. Regional
    B. Systemic opioids
    C. Inhalational
    D. Intramuscular/Iv/
    E. Cervical
    F. Opioids with adjuvants
    G. NSAIDS

11. Which type of non-pharmacologic methods do you know?
    A. Acupuncture
    B. Divertional therapy
    C. Psychotherapy
    D. Massage the back
    E. Hypnosis
    F. Show the patient how to bear down
    G. Help to do labor exercises
    H. Allow companion of her choice
    I. Rebuke for screaming
    J. Transcutaneous electrical nerve stimulation (TENS)
    K. Relaxation/breathing techniques
    L. Hot or cold packs, water immersion

III. Attitude related questions

12. Do you think obstetric analgesia be given for labor pain management?
    A. Disagree
    B. Strongly disagree
    C. Undecided
    D. Agree
    E. Strongly agree
13. Do you think every mother during labour should receive analgesic?
    A. Yes
    B. No
14. Do you believe that pain is natural and mother has to face it?
    A. Yes
    B. No
15. Do you think analgesic is necessary only if labour pain is very severe?
    A. Yes
    B. No
16. In your opinion which method is better for labour pain relief?
    A. Pharmacological
    B. Non pharmacological
    C. Undecided
    D. Do not know
17. Do you think pharmacologic obstetric analgesia has effect on the labour and delivery outcomes?
    A. Yes
    B. No
    C. Do not know
    D. Undecided
18. If YES, What do you think the effect of analgesia on labour outcome?
    A. Delay progress of labour
    B. Cause fetal distress
    C. Increased C/s delivery
    D. Increased instrumental delivery
    E. Affect breast feeding.
    F. Long-term backache
    G. Permanent medical problem
    H. Increase fetal death
    I. Others

IV. Utilization of obstetrics analgesia

19. Are using any form of obstetrics analgesia methods currently for labour pain relief?
    A. Yes
    B. No

20. If YES, for what did you used?
    A. Labour Pain
    B. Episiotomy
    C. Instrumental delivery
    D. Operation delivery
21. If YES for LABOUR PAIN which method did you used?
    A. Pharmacologic
    B. None pharmacologic
    C. Both
22. Which type of medicine do you use for pain relief during labour?
    A. Injection Pethidine
    B. Paracetamol
    C. Injection Hyoscine
    D. Injection Diclofenac
    E. Butapan
    F. Others
23. What method of pharmacologic methods did you used**?**
    A. Simple analgesics
    B. General anesthesia
    C. Regional analgesia
    D. Systemic opioids
    E. Inhalational
    F. Intramuscular/Iv/
    G. Cervical
    H. Opioids with adjuvants
    I. NSAIDS
    J. Others
24. Types of non-pharmacological method used for pain relief during labour
    A. Acupuncture
    B. Divertional therapy
    C. Psychotherapy
    D. Massage the back
    E. Hypnosis
    F. Rebuke for screaming
    G. Help to do labor exercises
    H. Allow companion of her choice
    I. Show the patient how to bear down
    J. Relaxation/breathing techniques
    K. Hot or cold packs, water immersion
    L. Transcutaneous electrical nerve stimulation (TENS)
25. IF obstetric analgesia NOT USED for LABOUR PAIN, Reasons for not administering analgesia in labor.
    A. No reason
    B. No drug
    C. No equipment
    D. Setting of the hospital
    E. No knowledge/skills
    F. Managerial problems
    G. Cultural /religion

Annexes 2 Information sheet and consent form

Title of the Research

Utilization of obstetric analgesia in labor pain management and associated factors in Amhara regional state referral hospitals, northwest Ethiopia 2014.

Name of Principal Investigator: Amare Workie

Name of the Organization: University of Gondar, Gondar College of Medicine and Health Sciences, Department of midwifery.

Name of the Sponsor: University of Gondar, Gondar College of Medicine and Health Sciences, Department of midwifery.

Information Sheet and Consent Form Prepared for obstetric care givers in labour ward from July1-15/2014

Introduction

This information sheet and consent form is prepared with the aim of assessing the Utilization of obstetric analgesia in labor pain management and associated factors in Amhara regional state referral hospitals, northwest Ethiopia 2014.

The research group includes the principal investigator, five trained data collectors, and two advisors from the University of Gondar.

Purpose of the Research Project

The aim of this study is to assess the Utilization of obstetric analgesia in labor pain management and associated factors. Assessing factors Utilization of obstetric analgesia in labor pain management is very important to increase maternal satisfaction with service and may contribute for utilization of institutional delivery. The results of this study will be used to design appropriate intervention programs to address the problems related to labour pain management in Amhara Regional State referral hospitals, Amhara region, North Ethiopia.

Procedure

The study involves obstetric care givers from July 1-15/2014. You have selected randomly to be one of the study participants if you are willing to take part in this study, we kindly invite you to take part in our project. If you are willing to participate, I need you to clearly understand the aim of this study and show your agreement. Finally, you are kindly requested to give your genuine response in the questionnaire.

Benefits, Risk and /or Discomfort

When you participate in this research project you may feel some discomfort by wasting your golden time (a maximum of 20 minutes). However, your participation is definitely important to identify factors to the utilization of obstetrics analgesia, to design appropriate strategy & to improve maternal health services in Amhara Regional State referral hospitals.

Incentives/Payments for Participating

You will not be provided any incentives or payment to take part in this project.

Confidentiality

The information collected from you will be kept confidential and stored in a file, without your name by assigning a code number to it. Hence, no report of the study ever identifies you.

Right to Refusal or Withdraw

You have the full right to refuse from participating in this research. You have also the full right to withdraw from this study at any time you wish.

Person to contact

This research project will be reviewed and approved by the ethical committee of the University of Gondar. If you have any question you can contact any of the following individuals and you may ask at any time you want.

Name:	**Amare Workie**	**Tewodros Seyum**	**Tesfaye Demeke**
Cell phone:	0913965307	0918031883	0918729102
E-mail:	amityw12@gmail.com	tedsha@gmail.com	tnigist55@gmail.com

Annexes 3 Assurance of the Investigator

I, the undersigned MSC student, agree to accept the responsibility for the scientific, ethical and technical conduct of the research project and for provision of required progress reports as per terms and conditions of the research and community services core process of the University of Gondar.

Name of the student:

Amare Workie Gashu

Signature: _____

Place of submission: Department of midwifery, College of Medicine and Health Sciences, University of Gondar.

Date of Submission: _____

Approval of the Advisor(s):

Advisor's name	Signature	Date
1. Tewodros Seyum (BSc, MSC)	____ _____	_____
2. Tesfaye Demeke (BSc, MSc)	_____	_____

Annexes 4 Copy of Ethical Clearance